

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A spinnerette assembly for forming one or more composite hollow fibers comprising:

a unitary spinnerette body;

at least one extrusion orifice formed in said unitary spinnerette body;

a hollow needle being affixed in a needle mounting hole formed in said unitary spinnerette body and wherein said needle mounting hole receives a portion of said hollow needle,

a said hollow needle extending through each said at least one extrusion orifice in a concentric manner to define at least one annular passage around said needle in said at least one extrusion orifice;

a bore forming fluid passage formed in said unitary spinnerette body, said bore forming fluid passage communicating with the interior of each said hollow needle;

at least one core forming material passage formed in said unitary spinnerette ~~assembly~~ body, wherein each said at least one core forming material passage comprises a core forming material inlet port extending from a surface of said ~~assembly~~ spinnerette body to an interior of said ~~assembly~~ unitary spinnerette body and at least one transverse passage extending from said core forming material port to each said at least one annular passage; and

a sheath forming material passage formed in said unitary spinnerette body wherein said sheath forming material passage comprises a sheath forming material port extending from a surface of said unitary spinnerette body ~~assembly~~ to each said annular passage.

Claim 2 (currently amended): A spinnerette assembly as recited in claim 1, wherein said at least one transverse passage is a backcut portion of said at least one core forming material passage that entirely surrounds said hollow needle in a continuous manner and is in communication with said at least one extrusion orifice.

Claim 3 (currently amended): A spinnerette assembly as recited in claim 1, wherein each said core forming material port extends substantially parallel to said at least one extrusion orifice and said at least one transverse passage extends substantially perpendicular to said core forming material port.

Claim 4 (currently amended): A spinnerette assembly as recited in claim 1, wherein said spinnerette assembly comprises a said unitary spinnerette body and a bottom plate separated from each other by a shim disposed between said unitary spinnerette body and said bottom plate.

Claim 5 (canceled)

Claim 6 (currently amended): A spinnerette assembly as recited in claim 4 wherein each said needle mounting hole is in communication with said bore forming fluid inlet port at a surface of said unitary spinnerette body via a said bore forming fluid passage.

Claim 7 (currently amended): A spinnerette as recited in Claim 6, wherein said bore forming fluid passage comprises a first bore forming fluid conduit coaxial with said needle and in communication with said needle and a second bore forming fluid conduit that extends at an angle with respect to said first bore forming fluid conduit from said bore forming fluid conduit to a surface of said unitary spinnerette body.

Claim 8 (currently amended): A spinnerette assembly as recited in Claim 4, wherein said extrusion orifice extends through portions of said unitary spinnerette body and said bottom plate.

Claim 9 (currently amended): A spinnerette assembly as recited in Claim 4, wherein said core forming material passage is formed in said unitary spinnerette body.

Claim 10 (currently amended): A spinnerette assembly as recited in claim 4, wherein a gap between said unitary spinnerette body and said bottom plate defines a portion of said sheath forming material passage.

Claim 11 (cancelled):

Claim 12 (currently amended): A spinnerette assembly for forming one or more multiple-sheath composite hollow fibers comprising:

- a unitary spinnerette body,

- at least one extrusion orifice formed in said unitary spinnerette body;

- a hollow needle being affixed in a needle mounting hole formed in said unitary spinnerette body and wherein said needle mounting hole receives a portion of said needle,

- a said hollow needle extending through each said at least one extrusion orifice in a concentric manner to define at least one annular passage around said in said at least one extrusion orifice;

- a bore forming fluid passage formed in said unitary spinnerette body, said bore forming fluid passage communicating with the interior of each said needle;

- at least one core forming material passage formed in said unitary spinnerette assembly body, wherein each said at least one core forming material passage comprises a core forming material inlet port extending from

a surface of said ~~assembly~~ unitary spinnerette body to an interior of said ~~assembly~~ unitary spinnerette body and at least one transverse passage extending from said core forming material port to each said at least one annular passage; and

a first sheath forming material passage, wherein said first sheath forming material passage comprises a first sheath forming material port extending from a surface of said unitary spinnerette assembly body to each said at least one annular passage

a second sheath forming material passage, wherein said second sheath forming material passage comprises a second sheath forming material port extending from a surface of said unitary spinnerette assembly body to each said annular passage.

Claim 13 (original): A spinnerette assembly as recited in Claim 12, wherein said transverse passage is a backcut portion of said core forming material passage that entirely surrounds said needle in a continuous manner and is in communication with said extrusion orifice.

Claim 14 (original): A spinnerette assembly as recited in Claim 12, wherein each said core forming material port extends substantially parallel to said extrusion orifice and said transverse passage extends substantially perpendicular to said core forming material port.

Claim 15 (currently amended): A spinnerette assembly as recited in Claim 12, wherein said spinnerette assembly comprises a unitary spinnerette body, a middle plate, and a bottom plate separated by a first shim disposed between said unitary spinnerette body and said middle plate, and a second shim disposed between said middle plate and said bottom plate.

Claim 16 (canceled)

Claim 17 (currently amended): A spinnerette assembly as recited in claim 15 wherein each said needle mounting hole is in communication with said bore forming fluid inlet port at a surface of said unitary spinnerette body via a bore forming fluid passage.

Claim 18 (currently amended): A spinnerette as recited in Claim 17, wherein said bore forming fluid passage comprises a first bore forming fluid conduit coaxial with said needle and in communication with said needle and a second bore forming fluid conduit that extends at an angle with respect to said first bore forming fluid conduit from said bore forming fluid conduit to a surface of said unitary spinnerette body.

Claim 19 (currently amended): A spinnerette assembly as recited in Claim 15, wherein said extrusion orifice extends through portions of said unitary spinnerette body, said middle plate, and said bottom plate.

Claim 20 (cancelled)

Claim 21 (currently amended): A spinnerette assembly as recited in claim 15, wherein a gap between said unitary spinnerette body and said middle plate defines a portion of said first sheath forming material passage, and the gap between said middle plate and said bottom plate defines a portion of said second sheath forming material passage.

Claim 22 (cancelled)

Claim 23 (previously amended): A spinnerette assembly as recited in claim 21 wherein said second sheath forming material passage comprises said second

sheath forming material inlet port situated at an exterior surface of said bottom plate in communication with a channel formed in said bottom plate, said channel being in communication with the gap defined between said bottom plate and said middle plate.

Claim 24 (previously amended): A spinnerette assembly as recited in claims 1 or 12 comprising multiple transverse passages and extrusion orifices for each core forming material port.

Claim 25 (previously withdrawn): A method for forming a composite hollow fiber comprising the steps of: delivering a core forming material to each annular passage in a spinnerette assembly, said core forming material entering said spinnerette assembly through one or more core forming material inlet ports and passing through the interior of said assembly to a transverse passage, a portion of said transverse passage entirely surrounding each needle in a continuous manner, and through an annular passage in communication with an extrusion orifice; delivering at least one sheath forming material concentrically around the core forming material as it traverses through each said annular passage; extruding the layered core forming material and at least one sheath forming material through the extrusion orifice and around each said needle, injecting a bore forming fluid into each needle to thereby provide a layered composite fiber comprising a bore forming fluid, a core forming material, and a sheath forming material as it exits the spinnerette assembly through the extrusion orifice; optionally passing the nascent extruded hollow fiber through an air gap; and solidifying the hollow fiber by cooling, solvent evaporation, or solvent extraction.